

REMARKS

Claims 1-18 are pending in the Application. Claims 1-18 are rejected under 35 U.S.C. § 103(a). Applicants respectfully traverse these rejections for at least the reasons stated below and respectfully request the Examiner to reconsider and withdraw these rejections.

Applicants thank the Examiner for discussing the present Office Action with Applicants' attorney, Robert A. Voigt, Jr., on January 13, 2005.

Applicants note that claims 1, 3-7, 9-13 and 15-18 were amended at the request of Diana Roberts¹ and not in response to the prior art.

I. REJECTIONS UNDER 35 U.S.C. § 103(a):

The Examiner has rejected claims 1-18 under 35 U.S.C. § 103(a) as being unpatentable over Wolff (U.S. Patent No. 6,067,545) in view of Smith (U.S. Patent No. 5,878,224). Applicants respectfully traverse these rejections for at least the reasons stated below and respectfully request the Examiner to reconsider and withdraw these rejections.

A. The Examiner has not provided any objective evidence or source of motivation for combining Wolff with Smith.

A *prima facie* showing of obviousness requires the Examiner to establish, *inter alia*, that the prior art references teach or suggest, either alone or in combination, all of the limitations of the claimed invention, and the Examiner must provide a motivation or suggestion to combine or modify the prior art reference to make the claimed inventions. M.P.E.P. §2142. The showings must be clear and particular and supported by objective evidence. *In re Lee*, 277 F.3d 1338, 1343, 61 U.S.P.Q.2d 1430, 1433-34 (Fed. Cir. 2002); *In re Kotzab*, 217 F.3d 1365, 1370,

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55 U.S.P.Q.2d 1313, 1317 (Fed. Cir. 2000); *In re Dembiczak*, 50 U.S.P.Q.2d. 1614, 1617 (Fed. Cir. 1999). Broad conclusory statements regarding the teaching of multiple references, standing alone, are not evidence. *Id.*

The Examiner's motivation for modifying Wolff with Smith to activate a first volume group by identifying a single disk with valid data out of the plurality of disks in the first volume group based on a data identifier, as recited in claim 1 and similarly in claims 7 and 13, is "because the use of a single server for managing files for a resource can also create network problems when the single server crashes and is no longer active on the network." Paper No. 3, page 3. The Examiner's motivation is insufficient to support a *prima facie* case of obviousness for at least the reasons stated below.

The motivation to modify Wolff with Smith must come from one of three possible sources: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art. *In re Rouffet*, 149 F.3d 1350, 1357, 47 U.S.P.Q.2d 1453, 1457-58 (Fed. Cir. 1998). The Examiner has not provided any evidence that her motivation comes from any of these sources. Instead, the Examiner is relying upon her own subjective opinion which is insufficient to support a *prima facie* case of obviousness. *In re Lee*, 61 U.S.P.Q.2d 1430, 1434 (Fed. Cir. 2002). Consequently, the Examiner's motivation is insufficient to support a *prima facie* case of obviousness for rejecting claims 1-18.

Furthermore, the Examiner's motivation is not a motivation as to why one of ordinary skill in the art with the primary reference (Wolff) in front of him would have been motivated to modify Wolff with the teachings of the secondary reference (Smith). The Examiner has not explained how the use of a single server for managing files for a resource that can create network problems when the single server crashes and is no longer active on the network (Examiner's motivation) relates to modifying Wolff to activate a volume group by identifying a single disk with valid data out of

the plurality of disks in the volume group based on a data identifier (missing limitation). Network problems that occur when the use of a single server crashes may be corrected in any number of ways. The Examiner has not explained how having network problems when the use of a single server crashes implies activating a first volume group by identifying a single disk with valid data out of the plurality of disks in the volume group based on a data identifier. The Examiner must provide a suggestion or motivation, either in the references or in the knowledge generally available to one of ordinary skill in the art to modify Wolff to activate a volume group by identifying a single disk with valid data out of the plurality of disks in the volume group based on a data identifier. M.P.E.P. §2143. As the Examiner has not provided such motivation, but instead relies upon her own subjective opinion, the Examiner has not presented a *prima facie* case of obviousness in rejecting claims 1-18. *In re Lee*, 61 U.S.P.Q.2d 1430, 1434 (Fed. Cir. 2002); M.P.E.P. §2143.

As a result of the foregoing, Applicants respectfully assert that the Examiner has not presented a *prima facie* case of obviousness in rejecting claims 1-18. M.P.E.P. §2143.

B. The Examiner has not presented a reasonable expectation of success when combining Wolff with Smith.

The Examiner must present a reasonable expectation of success in combining Wolff with Smith in order to establish a *prima facie* case of obviousness. M.P.E.P. §2143.02.

Wolff teaches that what is needed is an improved system and method for distributed processing over a network. Column 2, lines 20-21. Wolff further teaches that such a system would remove bottlenecks and disadvantages associated with current distributed networks, while at the same time maintaining its advantages. Column 2, lines 21-24. Wolff further teaches methods for load rebalancing a network. Column 2, line 29. Wolff further teaches that resource rebalancing includes

remapping of pathways between nodes, e.g., servers, and resources. Column 2, lines 37-38. Wolff further teaches that resource rebalancing allows the network to reconfigure itself as components come on-line/off-line, as components fails, and as components fail back. Column 2, lines 39-41.

Smith, on the other hand, teaches that there is a need for a method of controlling message flow to prevent server overload that overcomes the limitations of conventional techniques. Column 2, lines 40-42. Smith further teaches that network server overload controllers should reduce the load incoming to the server to the maximum level it can comfortably handle. Column 2, lines 42-45. Smith further teaches that the present invention overcomes the limitations of conventional techniques by implementing a method for preventing overload of a network server by messages received from a source initiating a network server transaction. Column 2, lines 50-53. Smith further teaches that the method includes the steps, executed by a processor, of establishing a target incoming transaction workload per measurement interval, estimating from measurements obtained during the measurement interval the transaction workload offered by a source, and reducing a rate at which new transactions are initiated by the source to match the incoming transaction workload to the target workload when the offered transaction workload exceeds a threshold. Column 2, lines 53-61.

The Examiner has not presented any evidence that there would be a reasonable expectation of success in combining Wolff, that relates to resource rebalancing that includes remapping of pathways between nodes, with Smith, that relates to preventing overload of a network server such as by reducing a rate at which new transactions are initiated by the source to match the incoming transaction workload to the target workload when the offered transaction workload exceeds a threshold. The Examiner must provide objective evidence as to how rebalancing resources by remapping of pathways between nodes would be combined with a method of preventing the overload of a network server such as by reducing a rate at

which new transactions are initiated by the source to match the incoming transaction workload to the target workload when the offered transaction workload exceeds a threshold. M.P.E.P. §2143.02. Accordingly, the Examiner has not presented a *prima facie* case of obviousness in rejecting claims 1-18. M.P.E.P. §2143.02.

C. Wolff and Smith, taken singly or in combination, do not teach or suggest the following claim limitations.

Applicants respectfully assert that Wolff and Smith, taken singly or in combination, do not teach or suggest "receiving from a first node by a second node a first notification of updating meta data associated with a plurality of disks in a first volume group shared by said first node and said second node" as recited in claim 1 and similarly in claims 7 and 13. The Examiner cites column 2, line 65 – column 3, line 3 and column 9, lines 21-25 of Wolff as teaching the above-cited claim limitation. Paper No. 3, page 2. Applicants respectfully traverse and assert that Wolff instead teaches a network that includes a client coupled to multiple servers where each of the resources is coupled to at least two servers. Column 2, line 65-column 3, line 3. Wolff further teaches a module within a server that generates a command to a command receipt module and sends/receives I/O data. Column 9, lines 21-25. There is no language in the cited passages of Wolff that teaches receiving a notification of updating meta data. Neither is there any language in the cited passages that teaches receiving a notification of updating meta data associated with a plurality of disks in a volume group. Neither is there any language in the cited passages that teaches receiving a notification of updating meta data associated with a plurality of disks in a volume group shared by a first node and a second node. Therefore, the Examiner has not presented a *prima facie* case of obviousness in rejecting claims 1, 7 and 13, since the Examiner is relying upon an incorrect, factual predicate in support of the rejection. *In re Rouffet*, 47 U.S.P.Q.2d 1453, 1455 (Fed. Cir. 1998).

Applicants further assert that Wolff and Smith, taken singly or in combination, do not teach or suggest "receiving from said first node a second notification by said second node indicating that said meta data associated with said plurality of disks in said first volume group has been updated, wherein said second notification comprises a data identifier" as recited in claim 1 and similarly in claims 7 and 13. The Examiner cites Figures 5A and 7A-D; column 11, lines 40-57; column 16, lines 42-45 and column 32, lines 7-9 of Wolff as teaching the above-cited claim limitations. Paper No. 3, page 2. Applicants respectfully traverse. Wolff instead teaches a module in a server that is called upon during the carrying out of physical I/O operations to gather and periodically report load-balancing utilization statistics. Column 11, lines 41-43. Wolff further teaches that the module, after each I/O operation, determines if the current I/O utilization has exceeded the configured load-balance utilization threshold. Column 11, lines 52-54. Wolff further teaches software modules that are required for an administrative server to handle both the administrative and data transfer functions associated with an I/O request. Column 16, lines 39-41. Wolff further teaches that processing begins by the receipt of an I/O request which is tagged with the source identifier indicating the origin of the I/O request. Column 16, lines 42-45. Wolff further teaches that in the process of configuring the node and rebalancing the configuration database, a node identifier is written into a field ("lock field") upon successful reservation of the sector in which the lock exists. Column 32, lines 7-9. There is no language in the cited passages that teaches receiving a notification indicating that meta data has been updated. Neither is there any language in the cited passages that teaches receiving a notification by a node indicating that meta data associated with a plurality of disks in a volume group has been updated. Neither is there any language in the cited passages that teaches a notification that includes a data identifier. While Wolff teaches a node identifier, this identifier is not included in a notification. Therefore, the Examiner has not presented a *prima facie* case of obviousness in rejecting claims 1, 7 and 13, since the Examiner is relying upon an

incorrect, factual predicate in support of the rejection. *In re Rouffet*, 47 U.S.P.Q.2d 1453, 1455 (Fed. Cir. 1998).

Applicants further assert that Wolff and Smith, taken singly or in combination, do not teach or suggest "activating by said second node said first volume group by identifying a single disk with valid meta data out of said plurality of disks in said first volume group based on said data identifier, wherein said data identifier identifies one or more disk that are active" as recited in claim 1 and similarly in claims 7 and 13. The Examiner cites column 9, lines 18-22 of Smith as teaching the above-cited claim limitation. Paper No. 3, page 3. Applicants respectfully traverse and assert that Smith instead teaches that a controller in a multi-service environment must allocate fair shares of the server capacity to competing services. Column 8, lines 63-65. Smith further teaches an embodiment of a fair share controller that executes an algorithm that continues to estimate demand as long as controls are active. Column 8, line 65 – Column 9, line 20. There is no language in the cited passage that the algorithm of Smith activates a volume group. Neither is there any language in the cited passage that the algorithm of Smith activates a volume group by identifying a single disk with valid data out of the plurality of disks in the volume group. Neither is there any language in the cited passage that the algorithm of Smith activates a volume group by identifying a single disk with valid data out of the plurality of disks in the volume group based on a data identifier. Therefore, the Examiner has not presented a *prima facie* case of obviousness in rejecting claims 1, 7 and 13, since the Examiner is relying upon an incorrect, factual predicate in support of the rejection. *In re Rouffet*, 47 U.S.P.Q.2d 1453, 1455 (Fed. Cir. 1998).

Applicants further assert that Wolff and Smith, taken singly or in combination, do not teach or suggest "a first node; and a second node coupled to said first node, wherein said second node is configured to take over the functions of said first node if said first node becomes inoperative" as recited in claim 13. The Examiner asserts that Wolff and Smith, taken in combination, teach the above-cited claim limitations but

does not cite to any passage in either Wolff or Smith. The Examiner is reminded that in order to establish a *prima facie* case of obviousness, the Examiner must provide a reference (or references when combined) that teaches or suggests all of the claim limitations. M.P.E.P. §2142. The Examiner cannot rely on her own subjective opinion but must provide objective evidence, which includes citations to particular passages in Wolff or Smith, in order to establish a *prima facie* case of obviousness. *In re Lee*, 61 U.S.P.Q.2d 1430, 1434 (Fed. Cir. 2002). Since the Examiner has not provided any evidence that Wolff and Smith, taken in combination, teach the above-cited claim limitations, the Examiner has not presented a *prima facie* case of obviousness in rejecting claim 13. *Id.*

Claims 2-6, 8-12 and 14-18 each recite combinations of features including the above combinations, and thus are patentable for at least the above-stated reasons. Claims 2-6, 8-12 and 14-18 recite additional features which, in combination with the features of the claims upon which they depend, are patentable over Wolff in view of Smith.

For example, Wolff and Smith, taken singly or in combination, do not teach or suggest "wherein said step of activating said first volume group shared by said first and said second node occurs after said first node becomes inoperative, wherein said first node becomes inoperative after sending said second notification" as recited in claim 2 and similarly in claims 8 and 14. The Examiner cites column 11, lines 7-14 of Wolff as teaching the above-cited claim limitations. Paper No. 3, page 3. Applicants respectfully traverse and assert that Wolff instead teaches that upon failure of an administrative server, the disk reader module in the server instructs the server configuration database to be rebalanced by calling the server configuration driver. Column 11, lines 7-10. Wolff further teaches that upon success, the physical I/O translation table is returned from the administrative servers' metadata supplier module at which time the disk reader module forwards the physical I/O onto a scheduling module for completion. Column 11, lines 10-14. There is no language in the cited

passage that teaches activating a volume group. Neither is there any language in the cited passage that teaches activating a volume group shared by a first and a second node. Neither is there any language in the cited passage that teaches that activating a volume group shared by a first and a second node occurs after the first node becomes inoperative. Neither is there any language in the cited passage that teaches that the first node becomes inoperative after sending a notification that indicates that the data associated with a plurality of disks in a volume group has been updated. Therefore, the Examiner has not presented a *prima facie* case of obviousness in rejecting claims 2, 8 and 14, since the Examiner is relying upon an incorrect, factual predicate in support of the rejection. *In re Rouffet*, 47 U.S.P.Q.2d 1453, 1455 (Fed. Cir. 1998).

Applicants further assert that Wolff and Smith, taken singly or in combination, do not teach or suggest "wherein said meta data is system configuration information used to identify said first volume group" as recited in claim 3 and similarly in claims 9 and 15. The Examiner cites Figures 1B and 5B as well as column 16, lines 49-51 of Wolff as teaching the above-cited claim limitation. Paper No. 3, page 4. Applicants respectfully traverse and assert that Wolf instead teaches that the server configuration driver uses information obtained from the configuration database. Column 16, lines 49-51. While Wolff teaches a server configuration driver that uses information, Wolff does not teach that the server configuration driver uses data that is associated with a plurality of disks in a volume group, as required by claim 1 upon which claim 3 depends. Therefore, the Examiner has not presented a *prima facie* case of obviousness in rejecting claims 3, 9 and 15, since the Examiner is relying upon an incorrect, factual predicate in support of the rejection. *In re Rouffet*, 47 U.S.P.Q.2d 1453, 1455 (Fed. Cir. 1998).

Applicants further assert that Wolff and Smith, taken singly or in combination, do not teach or suggest "wherein said data identifier comprises a first time stamp, wherein said activating step comprises the following steps: searching by said second node a plurality of time stamps in said meta data associated with said plurality of

disks in said first volume group, wherein said meta data is generated by a logical volume manager, wherein each of said plurality of time stamps in said meta data is associated with an identifier in said meta data that identifies one of said plurality of disks in said first volume group; matching said first time stamp with a second time stamp in said plurality of time stamps in said meta data associated with said plurality of disks in said first volume group; and in response to said matching, identifying said single disk by said second node by matching said first time stamp with said second time stamp associated with an identifier that identifies said single disk" as recited in claim 4 and similarly in claims 10 and 16.

Applicants further assert that Wolff and Smith, taken singly or in combination, do not teach or suggest "wherein said data identifier comprises a list of one or more active disks in said first volume group, wherein said activating step comprises the following steps: reading said list of one or more active disks in said first volume group by said second node, wherein said list includes a listing of said single disk; and in response to said reading, identifying said single disk listed in said list of one or more active disks in said first volume group" as recited in claim 5 and similarly in claims 11 and 17.

Applicants further assert that Wolff and Smith, taken singly or in combination, do not teach or suggest "determining by said first node that an allocation of disks in said first volume group needs to be changed; changing which disks are part of said first volume group by said first node; in response to changing which disks are part of said first volume group, updating by said first node said meta data associated with said plurality of disks in said first volume group" as recited in claim 6 and similarly in claim 12.

Applicants further assert that Wolff and Smith, taken singly or in combination, do not teach or suggest "wherein said meta data associated with said plurality of disks in said first volume group is updated if the allocation of said first volume group

shared by said first and said second node needs to be changed" as recited in claim 18. The Examiner cites column 3, lines 9-11 of Wolff as teaching the above-cited claim limitation. Paper No. 3, page 4. Applicants respectfully traverse and assert that Wolff instead teaches allocating first and second resources to available ones of the first and the second server nodes on the basis of the weights assigned. Column 3, lines 9-11. Hence, Wolff teaches that based on weights assigned to some or all of the server nodes and resources, the resources may be efficiently allocated to the server nodes. There is no language in the cited passage that teaches updating data associated with a plurality of disks in a volume group. Neither is there any language in the cited passage that teaches updating data associated with a plurality of disks in a volume group if the allocation of the volume group shared by a first and a second node needs to be changed. Therefore, the Examiner has not presented a *prima facie* case of obviousness in rejecting claim 18, since the Examiner is relying upon an incorrect, factual predicate in support of the rejection. *In re Rouffet*, 47 U.S.P.Q.2d 1453, 1455 (Fed. Cir. 1998).

As a result of the foregoing, Applicants respectfully assert that there are numerous claim limitations not taught or suggested in the cited prior art, and thus the Examiner has not presented a *prima facie* case of obviousness in rejecting claims 1-18 as being unpatentable over Wolff in view of Smith. M.P.E.P. §2143.

II. CONCLUSION

As a result of the foregoing, it is asserted by Applicants that claims 1-18 in the Application are in condition for allowance, and Applicants respectfully request an allowance of such claims. Applicants respectfully request that the Examiner call Applicants' attorney at the below listed number if the Examiner believes that such a discussion would be helpful in resolving any remaining issues.

Respectfully submitted,

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